AMENDMENTS TO THE CLAIMS

Claims 1-4 (Canceled)

5. (Currently Amended) An optical transmitter comprising:

a first encoder that generates a differentially encoded signal from a data signal, the differentially encoded signal comprising a positive phase differential signal and a reverse phase differential signal, the reverse phase differential signal being an inverted version of the positive phase differential signal, the first encoder including a one-bit delay circuit, an exclusive OR circuit, and a differential circuit that is electrically connected to the exclusive OR circuit and outputs an inverted output signal and a non-inverted output signal, wherein the first encoder is configured so that an output signal of the exclusive OR circuit is input to the differential circuit, the inverted output signal of the differential circuit is input to the one-bit delay circuit, and an output signal of the one-bit delay circuit and the data signal is input to the exclusive OR circuit, the inverted output signal of the differential circuit being the positive phase differential signal, and the non-inverted output signal of the differential circuit being the reverse phase differential signal;

a second encoder to which a clock signal and the positive phase and the reverse phase differential signals are input, the second encoder being configured to generate ~~that generates~~ an electric RZ (return-to-zero) differential signal as an RZ signal in an electric area from the differentially encoded signal, the electric RZ differential signal comprising a positive phase RZ signal and reverse phase RZ signal which are generated by the second encoder by synchronizing the positive phase and the reverse phase differential signals with [[a]]the clock signal; and

a Mach-Zehnder interferometer type intensity modulator that generates an optical RZ-DPSK (differential phase shift keying) signal as an RZ signal in an optical area based on the electric RZ differential signal.

6. (Previously Presented) The optical transmitter according to claim 5, wherein

the optical RZ-DPSK signal is modulated by a differential phase of $(0, \pi)$.

7-8. (Canceled)

9. (Currently Amended) A method for optical transmission, comprising:

generating a differentially encoded signal from a data signal using an encoder including a one-bit delay circuit, an exclusive OR circuit, and a differential circuit that is electrically connected to the exclusive OR circuit and outputs an inverted output signal and a non-inverted output signal, by inputting an output signal of the exclusive OR circuit to the differential circuit, inputting the inverted output signal to the one-bit delay circuit, and inputting an output signal of the one-bit delay circuit and the data signal to the exclusive OR circuit, the differentially encoded signal comprising a positive phase differential signal and a reverse phase differential signal, the reverse phase differential signal being an inverted version of the positive phase differential signal;

generating an electric RZ (return-to-zero) differential signal as an RZ signal in an electric area from the differentially encoded signal, the electric RZ differential signal comprising a positive phase RZ signal and a reverse phase RZ signal which are generated by synchronizing the positive phase differential signal and the reverse phase differential signal, respectively, with a clock signal;

inputting the electric RZ differential signal to a Mach-Zehnder interferometer type intensity modulator;

utilizing the Mach-Zehnder interferometer type intensity modulator to modulate the output of a light source based on the electric RZ differential signal to generate an optical RZ-DPSK (differential phase shift keying) signal as an RZ signal in an optical area; and

transmitting the RZ-DPSK signal via an optical transmission line.

10. (Previously Presented) The method according to claim 9, wherein

the optical RZ-DPSK signal is modulated by a differential phase of $(0, \pi)$.

11. (Previously Presented) The method according to claim 9, wherein

the positive phase differential signal is generated by inverting an output of a circuit which performs an exclusive OR of the data signal and a one-bit delayed version of the inverted output of the circuit, and

the reversed phase differential signal is obtained as a non-inverted output of the circuit performing the exclusive OR.